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## SEQUENCE LISTING

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<110> Rybak, Susanna M.  
Newton, Dianne L.  
The United States of America  
as represented by The Secretary of the  
Department of Health and Human Services

&lt;120&gt; Recombinant Anti-Tumor RNase

&lt;130&gt; 015280-343100US

&lt;140&gt; US 09/622,613

&lt;141&gt; 2000-08-17

&lt;150&gt; US 60/079,751

&lt;151&gt; 1998-03-27

&lt;150&gt; WO PCT/US99/06641

&lt;151&gt; 1999-03-26

&lt;160&gt; 43

&lt;170&gt; PatentIn Ver. 2.0

&lt;210&gt; 1

&lt;211&gt; 312

&lt;212&gt; DNA

&lt;213&gt; Rana pipiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(312)

&lt;223&gt; ribonuclease (RaPLR1)

&lt;400&gt; 1

caa	gac	tgg	ctt	acg	ttt	cag	aag	aag	cac	ctg	aca	aac	acc	cgg	gat	48
Gln	Asp	Trp	Leu	Thr	Phe	Gln	Lys	Lys	His	Leu	Thr	Asn	Thr	Arg	Asp	
1				5					10					15		

gtt	gac	tgt	aat	aat	atc	atg	tca	aca	aac	ttg	ttc	cac	tgc	aag	gac	96
Val	Asp	Cys	Asn	Asn	Ile	Met	Ser	Thr	Asn	Leu	Phe	His	Cys	Lys	Asp	
			20					25					30			

aag	aac	act	ttt	atc	tat	tca	cgt	cct	gag	cca	gtg	aag	gcc	atc	tgt	144
Lys	Asn	Thr	Phe	Ile	Tyr	Ser	Arg	Pro	Glu	Pro	Val	Lys	Ala	Ile	Cys	
		35					40					45				

aaa	gga	att	ata	gcc	tcc	aaa	aat	gtg	tta	act	acc	tct	gag	ttt	tat	192
Lys	Gly	Ile	Ile	Ala	Ser	Lys	Asn	Val	Leu	Thr	Thr	Ser	Glu	Phe	Tyr	
	50					55					60					

ctc	tct	gat	tgc	aat	gta	aca	agc	agg	cct	tgc	aag	tat	aaa	tta	aag	240
Leu	Ser	Asp	Cys	Asn	Val	Thr	Ser	Arg	Pro	Cys	Lys	Tyr	Lys	Leu	Lys	
65					70					75					80	

aaa	tca	act	aat	aca	ttt	tgt	gta	act	tgt	gag	aat	caa	gct	cca	gta	288
Lys	Ser	Thr	Asn	Thr	Phe	Cys	Val	Thr	Cys	Glu	Asn	Gln	Ala	Pro	Val	
				85					90						95	

cat ttc gtg ggt gtc gga cat tgc  
His Phe Val Gly Val Gly His Cys  
100

312

<210> 2  
<211> 104  
<212> PRT  
<213> Rana pipiens

<400> 2  
Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp  
1 5 10 15

Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp  
20 25 30

Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys  
35 40 45

Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr  
50 55 60

Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys  
65 70 75 80

Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val  
85 90 95

His Phe Val Gly Val Gly His Cys  
100

<210> 3  
<211> 312  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Rana pipiens  
ribonuclease with Met23Leu substitution  
(recombinant RaPLR1 Met23Leu)

<220>  
<221> CDS  
<222> (1)..(312)  
<223> RaPLR1 Met23Leu

<400> 3  
caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat 48  
Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp  
1 5 10 15

gtt gac tgt aat aat atc ctg tca aca aac ttg ttc cac tgc aag gac 96  
Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys Asp  
20 25 30

aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc tgt 144  
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys  
35 40 45

aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt tat 192  
 Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr  
           50                              55                              60

ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta aag 240  
 Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys  
       65                              70                              75                              80

aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta 288  
 Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val  
                               85                              90                              95

cat ttc gtg ggt gtc gga cat tgc 312  
 His Phe Val Gly Val Gly His Cys  
                               100

<210> 4

<211> 104

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens  
 ribonuclease with Met23Leu substitution  
 (recombinant RaPLR1 Met23Leu)

<400> 4

Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp  
       1                              5                              10                              15

Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys Asp  
                               20                              25                              30

Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys  
                               35                              40                              45

Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr  
       50                              55                              60

Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys  
       65                              70                              75                              80

Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val  
                               85                              90                              95

His Phe Val Gly Val Gly His Cys  
                               100

<210> 5

<211> 315

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens  
 ribonuclease with Met at position 1 (recombinant  
 Met(-1) RaPLR1)

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(315)

&lt;223&gt; Met(-1) RaPLR1

&lt;400&gt; 5

atg caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg 48

Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg

1

5

10

15

gat gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag 96

Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys

20

25

30

gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc 144

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile

35

40

45

tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt 192

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe

50

55

60

tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta 240

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu

65

70

75

80

aag aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca 288

Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro

85

90

95

gta cat ttc gtg ggt gtc gga cat tgc 315

Val His Phe Val Gly Val Gly His Cys

100

105

&lt;210&gt; 6

&lt;211&gt; 105

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana pipiens  
ribonuclease with Met at position 1 (recombinant  
Met(-1) RaPLR1)

&lt;400&gt; 6

Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg

1

5

10

15

Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys

20

25

30

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile

35

40

45

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe

50

55

60

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu

65

70

75

80

Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro  
                             85                            90                            95

Val His Phe Val Gly Val Gly His Cys  
                             100                            105

<210> 7

<211> 315

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens  
 ribonuclease with Met at position 1 and Met24Leu  
 substitution (recombinant Met(-1) RaPLR1 Met23Leu)

<220>

<221> CDS

<222> (1)..(315)

<223> Met(-1) RaPLR1 Met23Leu

<400> 7

atg caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg 48  
 Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg  
           1                            5                            10                            15

gat gtt gac tgt aat aat atc ctg tca aca aac ttg ttc cac tgc aag 96  
 Asp Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys  
                             20                            25                            30

gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc 144  
 Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile  
                             35                            40                            45

tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt 192  
 Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe  
                             50                            55                            60

tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta 240  
 Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu  
                             65                            70                            75                            80

aag aaa tca act att aca ttt tgt gta act tgt gag aat caa gct cca 288  
 Lys Lys Ser Thr Ile Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro  
                             85                            90                            95

gta cat ttc gtg ggt gtc gga cat tgc 315  
 Val His Phe Val Gly Val Gly His Cys  
                             100                            105

<210> 8

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens  
 ribonuclease with Met at position 1 and Met24Leu  
 substitution (recombinant Met(-1) RaPLR1 Met23Leu)

&lt;400&gt; 8

Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg  
 1 5 10 15

Asp Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys  
 20 25 30

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile  
 35 40 45

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe  
 50 55 60

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu  
 65 70 75 80

Lys Lys Ser Thr Ile Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro  
 85 90 95

Val His Phe Val Gly Val Gly His Cys  
 100 105

&lt;210&gt; 9

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Rana pipiens  
 ribonuclease with (His)6 tag, Met at position 7  
 and Met30Leu substitution (recombinant Met(-1)  
 RaPLR1 Met23Leu-(His)6)

&lt;400&gt; 9

His His His His His His Met Gln Asp Trp Leu Thr Phe Gln Lys Lys  
 1 5 10 15

His Leu Thr Asn Thr Arg Asp Val Asp Cys Asn Asn Ile Leu Ser Thr  
 20 25 30

Asn Leu Phe His Cys Lys Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro  
 35 40 45

Glu Pro Val Lys Ala Ile Cys Lys Gly Ile Ile Ala Ser Lys Asn Val  
 50 55 60

Leu Thr Thr Ser Glu Phe Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg  
 65 70 75 80

Pro Cys Lys Tyr Lys Leu Lys Lys Ser Thr Ile Thr Phe Cys Val Thr  
 85 90 95

Cys Glu Asn Gln Ala Pro Val His Phe Val Gly Val Gly His Cys  
 100 105 110

&lt;210&gt; 10

&lt;211&gt; 312

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana pipiens  
ribonuclease with Gln1Ser substitution  
(recombinant RaPLR1 Q1S)

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(312)

&lt;223&gt; RaPLR1 Q1S

&lt;400&gt; 10

tca gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat	48
Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp	
1 5 10 15	
ggt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag gac	96
Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp	
20 25 30	
aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc tgt	144
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys	
35 40 45	
aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt tat	192
Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr	
50 55 60	
ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta aag	240
Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys	
65 70 75 80	
aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta	288
Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val	
85 90 95	
cat ttc gtg ggt gtc gga cat tgc	312
His Phe Val Gly Val Gly His Cys	
100	

&lt;210&gt; 11

&lt;211&gt; 104

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana pipiens  
ribonuclease with Gln1Ser substitution  
(recombinant RaPLR1 Q1S)

&lt;400&gt; 11

Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp	
1 5 10 15	
Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp	
20 25 30	
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys	
35 40 45	

Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr  
50 55 60

Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys  
65 70 75 80

Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val  
85 90 95

His Phe Val Gly Val Gly His Cys  
100

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<210> 12
<211> 315
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence:Rana pipiens  
ribonuclease with Met at position 1 and Gln2Ser  
substitution (recombinant Met(-1) RaPLR1 Q1S)

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<220>
<221> CDS
<222> (1)..(315)
<223> Met(-1) RaPLR1 Q1S
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<400> 12																48
atg	tca	gac	tgg	ctt	acg	ttt	cag	aag	aag	cac	ctg	aca	aac	acc	cgg	
Met	Ser	Asp	Trp	Leu	Thr	Phe	Gln	Lys	Lys	His	Leu	Thr	Asn	Thr	Arg	
1				5				10				15				
gat	gtt	gac	tgt	aat	aat	atc	atg	tca	aca	aac	ttg	ttc	cac	tgc	aag	96
Asp	Val	Asp	Cys	Asn	Asn	Ile	Met	Ser	Thr	Asn	Leu	Phe	His	Cys	Lys	
				20				25				30				
gac	aag	aac	act	ttt	atc	tat	tca	cgt	cct	gag	cca	gtg	aag	gcc	atc	144
Asp	Lys	Asn	Thr	Phe	Ile	Tyr	Ser	Arg	Pro	Glu	Pro	Val	Lys	Ala	Ile	
35				40				45								
tgt	aaa	gga	att	ata	gcc	tcc	aaa	aat	gtg	tta	act	acc	tct	gag	ttt	192
Cys	Lys	Gly	Ile	Ile	Ala	Ser	Lys	Asn	Val	Leu	Thr	Thr	Ser	Glu	Phe	
50				55				60								
tat	ctc	tct	gat	tgc	aat	gta	aca	agc	agg	cct	tgc	aag	tat	aaa	tta	240
Tyr	Leu	Ser	Asp	Cys	Asn	Val	Thr	Ser	Arg	Pro	Cys	Lys	Tyr	Lys	Leu	
65				70				75				80				
aag	aaa	tca	act	aat	aca	ttt	tgt	gta	act	tgt	gag	aat	caa	gct	cca	288
Lys	Lys	Ser	Thr	Asn	Thr	Phe	Cys	Val	Thr	Cys	Glu	Asn	Gln	Ala	Pro	
				85				90				95				
gta	cat	ttc	gtg	ggg	gtc	gga	cat	tgc								315
Val	His	Phe	Val	Gly	Val	Gly	His	Cys								
100				105												



<210> 13  
 <211> 105  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rana pipiens  
 ribonuclease with Met at position 1 and Gln2Ser  
 substitution (recombinant Met (-1) RaPLR1 Q1S)

<400> 13

Met Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg  
 1 5 10 15

Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys  
 20 25 30

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile  
 35 40 45

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe  
 50 55 60

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu  
 65 70 75 80

Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro  
 85 90 95

Val His Phe Val Gly Val Gly His Cys  
 100 105

<210> 14  
 <211> 330  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rana  
 catesbeiana oocyte ribonuclease (RaCOR1) synthetic  
 gene modified to use E. coli preferred codons

<220>

<221> CDS

<222> (1)..(330)

<223> RaCOR1 for E. coli expression system

<400> 14

cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg atc 48  
 Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile  
 1 5 10 15

atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt cag 96  
 Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln  
 20 25 30

tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144  
 Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys  
 35 40 45

gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act cgt 192  
 Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg  
           50                              55                              60

ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240  
 Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys  
       65                              70                              75                              80

ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288  
 Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu  
                               85                              90                              95

aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 330  
 Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
                               100                              105                              110

<210> 15  
 <211> 110  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana  
       catesbeiana oocyte ribonuclease (RaCOR1) synthetic  
       gene modified to use E. coli preferred codons

<400> 15  
 Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile  
   1                              5                              10                              15  
 Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln  
                               20                              25                              30  
 Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys  
                               35                              40                              45  
 Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg  
   50                              55                              60  
 Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys  
   65                              70                              75                              80  
 Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu  
                               85                              90                              95  
 Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
                               100                              105                              110

<210> 16  
 <211> 333  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana  
       catesbeiana-ribonuclease-with-Met-at-position-1-  
       (recombinant Met(-1) RaCOR1)

<220>  
 <221> CDS  
 <222> (1)..(333)  
 <223> Met(-1) RaCOR1

<400> 16

atg cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg 48  
 Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro  
 1 5 10 15

atc atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt 96  
 Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly  
 20 25 30

cag tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt 144  
 Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val  
 35 40 45

aaa gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act 192  
 Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr  
 50 55 60

cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg 240  
 Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro  
 65 70 75 80

tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc 288  
 Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys  
 85 90 95

gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 333  
 Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
 100 105 110

<210> 17  
 <211> 111  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana  
 catesbeiana ribonuclease with Met at position 1  
 (recombinant Met(-1) RaCOR1)

<400> 17

Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro  
 1 5 10 15

Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly  
 20 25 30

Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val  
 35 40 45

Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr  
 50 55 60

Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro  
 65 70 75 80

Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys  
                             85                            90                            95

Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
                   100                            105                            110

<210> 18  
 <211> 330  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Rana  
       catesbeiana ribonuclease with Met22Leu and  
       Met75Leu substitutions (recombinant RaCOR1  
       Met22Leu Met57Leu)

<220>  
 <221> CDS  
 <222> (1)..(330)  
 <223> RaCOR1 Met22Leu Met57Leu

<400> 18  
 cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg atc 48  
 Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile  
   1                            5                            10                            15

atc tgc aac act atc ctg gac aac aac atc tac atc gtt ggt ggt cag 96  
 Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln  
                   20                            25                            30

tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144  
 Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys  
                   35                            40                            45

gct atc tgc act ggt gtt atc aac ctg aac gtt ctg tct act act cgt 192  
 Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr Arg  
   50                            55                            60

ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240  
 Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys  
   65                            70                            75                            80

ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288  
 Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu  
                             85                            90                            95

aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 330  
 Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
                   100                            105                            110

<210> 19  
 <211> 110  
 <212> PRT  
 <213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease with Met22Leu and  
Met75Leu substitutions (recombinant RaCOR1  
Met22Leu Met57Leu)

&lt;400&gt; 19

Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile  
1 5 10 15

Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln  
20 25 30

Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys  
35 40 45

Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr Arg  
50 55 60

Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys  
65 70 75 80

Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu  
85 90 95

Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
100 105 110

&lt;210&gt; 20

&lt;211&gt; 333

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease with Met at position 1,  
Met23Leu and Met58Leu substitutions (recombinant  
Met(-1) RaCOR1 Met22Leu Met57Leu)

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(333)

&lt;223&gt; Met(-1) RaCOR1 Met22Leu Met57Leu

&lt;400&gt; 20

atg cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg 48  
Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro  
1 5 10 15

atc atc tgc aac act atc ctg gac aac aac atc tac atc gtt ggt ggt 96  
Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly  
20 25 30

cag tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt 144  
Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val  
35 40 45

aaa gct atc tgc act ggt gtt atc aac ctg aac gtt ctg tct act act 192  
Lys Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr  
50 55 60

```

cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg      240
Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
  65                      70                      75                      80

tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc      288
Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
                      85                      90                      95

gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg      333
Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
          100                      105                      110

```

```

<210> 21
<211> 111
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence:Rana
      catesbeiana ribonuclease with Met at position 1,
      Met23Leu and Met58Leu substitutions (recombinant
      Met(-1) RaCOR1 Met22Leu Met57Leu)

```

```

<400> 21
Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
  1                      5                      10                      15

Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly
          20                      25                      30

Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
          35                      40                      45

Lys Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr
          50                      55                      60

Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
  65                      70                      75                      80

Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
          85                      90                      95

Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
          100                      105                      110

```

```

<210> 22
<211> 117
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence:Rana
      catesbeiana ribonuclease with (His)6 tag, Met at
      position 7, Met23Leu and Met58Leu substitutions
      (recombinant Met(-1) RaCOR1 Met22Leu Met57Leu-(His)6)

```

```

<400> 22
His His His His His His Met Gln Asn Trp Ala Thr Phe Gln Gln Lys
  1                      5                      10                      15

```

His Ile Ile Asn Thr Pro Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn  
20 25 30

Ile Tyr Ile Val Gly Gly Gln Cys Lys Arg Val Asn Thr Phe Ile Ile  
35 40 45

Ser Ser Ala Thr Thr Val Lys Ala Ile Cys Thr Gly Val Ile Asn Leu  
50 55 60

Asn Val Leu Ser Thr Thr Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr  
65 70 75 80

Ser Ile Thr Pro Arg Pro Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn  
85 90 95

Tyr Ile Cys Val Lys Cys Glu Asn Gln Tyr Pro Val His Phe Ala Gly  
100 105 110

Ile Gly Arg Cys Pro  
115

<210> 23

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rana  
catesbeiana ribonuclease with Gln1Ser substitution  
(recombinant RaCOR1 Q1S)

<220>

<221> CDS

<222> (1) .. (330)

<223> RaCOR1 Q1S

<400> 23

tca aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg atc 48  
Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile  
1 5 10 15

atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt cag 96  
Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln  
20 25 30

tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144  
Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys  
35 40 45

gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act cgt 192  
Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg  
50 55 60

ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240  
Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys  
65 70 75 80

ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288  
Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu  
85 90 95

```

aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg      330
Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
      100                      105                      110

```

```

<210> 24
<211> 110
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence:Rana
      catesbeiana ribonuclease with Gln1Ser substitution
      (recombinant RaCOR1 Q1S)

```

```

<400> 24
Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile
  1                      5                      10                      15

Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
      20                      25                      30

Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
      35                      40                      45

Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg
      50                      55                      60

Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
  65                      70                      75                      80

Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
      85                      90                      95

Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
      100                      105                      110

```

```

<210> 25
<211> 333
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence:Rana
      catesbeiana ribonuclease with Met at position 1
      and Gln2Ser substitution

```

```

<220>
<221> CDS
<222> ()..(333)
<223> Met(-1) RaCOR1 Q1S

```

```

<400> 25
atg tca aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg      48
Met Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
  1                      5                      10                      15

atc atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt      96
Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly
      20                      25                      30

```



cag tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt 144  
 Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val  
           35                          40                          45

aaa gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act 192  
 Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr  
       50                          55                          60

cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg 240  
 Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro  
       65                          70                          75                          80

tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc 288  
 Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys  
                           85                          90                          95

gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 333  
 Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
                   100                          105                          110

<210> 26

<211> 111

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rana  
 catesbeiana ribonuclease with Met at position 1  
 and Gln2Ser substitution

<400> 26

Met Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro  
       1                          5                          10                          15

Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly  
                   20                          25                          30

Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val  
           35                          40                          45

Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr  
       50                          55                          60

Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro  
       65                          70                          75                          80

Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys  
                   85                          90                          95

Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro  
           100                          105                          110

<210> 27

<211> 2855

<212> DNA

<213> Rana pipiens

&lt;220&gt;

<223> Rana pipiens ribonuclease (RaPLR1) Clone 5a1b cDNA  
insert

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (97)..(481)

&lt;223&gt; RaPLR1

&lt;220&gt;

&lt;221&gt; sig\_peptide

&lt;222&gt; (97)..(165)

&lt;400&gt; 27

atcagttgct catcgtttga ccaagttggt ttccatctga agcaatattt atatataatt 60

tctcttatat	ataaaggcct	gatcacgact	tccaga	atg	ttt	cca	aaa	ttc	tca	114
				Met	Phe	Pro	Lys	Phe	Ser	
				1				5		

ttt	ctc	ctg	ata	ttt	gca	ggt	ggt	ttg	agt	ctc	act	cat	aag	tcc	tta	162
Phe	Leu	Leu	Ile	Phe	Ala	Val	Val	Leu	Ser	Leu	Thr	His	Lys	Ser	Leu	
			10					15					20			

tgt	caa	gac	tgg	ctt	acg	ttt	cag	aag	aag	cac	ctg	aca	aac	acc	cgg	210
Cys	Gln	Asp	Trp	Leu	Thr	Phe	Gln	Lys	Lys	His	Leu	Thr	Asn	Thr	Arg	
		25					30					35				

gat	ggt	gac	tgt	aat	aat	atc	atg	tca	aca	aac	ttg	ttc	cac	tgc	aag	258
Asp	Val	Asp	Cys	Asn	Asn	Ile	Met	Ser	Thr	Asn	Leu	Phe	His	Cys	Lys	
	40					45					50					

gac	aag	aac	act	ttt	atc	tat	tca	cgt	cct	gag	cca	gtg	aag	gcc	atc	306
Asp	Lys	Asn	Thr	Phe	Ile	Tyr	Ser	Arg	Pro	Glu	Pro	Val	Lys	Ala	Ile	
	55				60					65				70		

tgt	aaa	gga	att	ata	gcc	tcc	aaa	aat	gtg	tta	act	acc	tct	gag	ttt	354
Cys	Lys	Gly	Ile	Ile	Ala	Ser	Lys	Asn	Val	Leu	Thr	Thr	Ser	Glu	Phe	
			75					80						85		

tat	ctc	tct	gat	tgc	aat	gta	aca	agc	agg	cct	tgc	aag	tat	aaa	tta	402
Tyr	Leu	Ser	Asp	Cys	Asn	Val	Thr	Ser	Arg	Pro	Cys	Lys	Tyr	Lys	Leu	
			90					95					100			

aag	aaa	tca	act	aat	aca	ttt	tgt	gta	act	tgt	gag	aat	caa	gct	cca	450
Lys	Lys	Ser	Thr	Asn	Thr	Phe	Cys	Val	Thr	Cys	Glu	Asn	Gln	Ala	Pro	
		105					110				115					

gta	cat	ttc	gtg	ggt	gtc	gga	cat	tgc	tagaaat	atg	tttgacaaca	497
Val	His	Phe	Val	Gly	Val	Gly	His	Cys				
	120					125						

gggatgtgat aagcagctgc aagaaattat tttgaagtga atttactaaa gacactaatt 557

ttgcataaat tttccccaga gcttaccggt agtaagaaaa ttccaacagg gagccaagca 617

cagaaagtaa actaaggagc caaagtaatt ataaaagtca cactggaccg ctgctactgc 677

actcagatga ccaaatgaga aacagacaaa aacagcagag ttgggaagcg cagatccggg 737

aggtggcggg gagtcaattg gggatggagt ccatgtgaga tttggaaccg tttgttgctg 797

gtgaagcatg tggccggtgc acagtacaca tggggaaaga tagtcggatt ggccgggctc 857  
 gctgtggtgg tgccggcggt tgagccaaag gtggtgggga gatggctgtc ccccttctg 917  
 tgggggctgt ggacagaggg agctgaggac caggggtggg aggcctggag agaattttca 977  
 aacagctgac gtggccgggg ctgggcagca tcggggaggg gaagggtgg gctcagatcc 1037  
 aggaagcatg gtcactgtat gaccagagtg gaagatggca gagcgcgtgc agtggccggg 1097  
 gagaccagag ggatctgtgc ccagcctttc cctccctga tgtggcccgt ttttggttat 1157  
 ggtaaccgct cccagctggt tgggggtggt ttcgggcttc gcatttttgg tctgcggctc 1217  
 cctctgtcca cggccctcat ggaggggggg tgggcatttc tccaccgct ttggtctgt 1277  
 tgctggcact gtgcgagcga gtttgccag tcattggctca ttttccatt tgtcatgtgt 1337  
 gttggttgca tgttttgtcg gcggtggact gttttgaatt tcacatggat tccatcttcg 1397  
 gttggttcct tgccacctcc tggatctgtg ctttccaatt ctgttttttc cccagcgctt 1457  
 agtggatgca gtgaaactct ggtgattacc atcatccaat catgtgcaag aaaaaatatt 1517  
 ttcataatttc ttccacccaa ttgggtattc attaggaagt ttgagcacat tcacgttcta 1577  
 gggaaaatga gtgcaactgc acttccaaag ttcacagtct atttgccttt agtaaatcca 1637  
 cccattatt tctgagcaga ggacaaatct atggcaacaa aaaaacttta cctactgaat 1697  
 tattttatat tgattgaaga taatctttct ttcatttcct aaatattgta atcaaaatta 1757  
 atacataaca gctatgtatt ataccacagc agcaaagtgt aaaatagttt taaacgtaaa 1817  
 atatgtttta ccttaaagtg gaagtaaact tctatcacta aattttacct ataggtgaga 1877  
 cccatgcgct cttcaggaat ggccgctggt gctgttcctt cagagccctg tgctgcgaac 1937  
 ggccgctccc gtgtgcatgt acaggagtga cgtcatcaca gctccggcca gtcacagagt 1997  
 tagagttcaa gtgtgagtgg cttgagccac gatgatgtcg ctcccaaaca tgtgtgcggg 2057  
 ggtctccgtt tgccggcgag gacactgggg gaatagcatg ggtgtgccgt tccttcagag 2117  
 catatgcgtg ggtgacgtca ctagctgcat ctaaagtaat atctcctaaa caatgcacat 2177  
 ttaggagata gttacagtac ctatgggtaa gccttattgt aggcttacct ataggtaaaa 2237  
 atcatgcatg ggagtttact tccatgtagg gatgaggaga gcaggctgac atattaaagt 2297  
 aaaaatctta cctatgtagg gatgaggaga gcaggctgac atattaaagt aaaaatctta 2357  
 cctatagtgg ttgaaagtag ttgaaaataa gatggcctgc agggctctta aaaggctagg 2417  
 atagcacagt atccacatga ggcaccagat ctcgctcccc cacacatgag tagcaaggag 2477  
 caatggtaat gtgagtttct taggctcgac cgttaaatag cgttggccct ccaagtgata 2537  
 catgggagat aagcagatgt ccgcgtatgc acgcagacat atgtgggcgg atgttgggat 2597  
 aggacgatca gagagatgct cagatctgcc cgaaggagaa aggtggaaac atccattcaa 2657

tgtcatatgc ctaaagaagc caccacccat aaaaaggttaa tagatcatca ggtggcagcc 2717  
aaccacacca ggcccaaagg aggggtggccc cagtgaaccg tataggaaca gcactcagct 2777  
atcacataat tacacaagag tatagagacc cattgtgggt attaacaacc aaatggctaa 2837  
aaaaaaaaaa aaaaaaaaaa 2855

<210> 28

<211> 127

<212> PRT

<213> Rana pipiens

<400> 28

Met Phe Pro Lys Phe Ser Phe Leu Leu Ile Phe Ala Val Val Leu Ser  
1 5 10 15

Leu Thr His Lys Ser Leu Cys Gln Asp Trp Leu Thr Phe Gln Lys Lys  
20 25 30

His Leu Thr Asn Thr Arg Asp Val Asp Cys Asn Asn Ile Met Ser Thr  
35 40 45

Asn Leu Phe His Cys Lys Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro  
50 55 60

Glu Pro Val Lys Ala Ile Cys Lys Gly Ile Ile Ala Ser Lys Asn Val  
65 70 75 80

Leu Thr Thr Ser Glu Phe Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg  
85 90 95

Pro Cys Lys Tyr Lys Leu Lys Lys Ser Thr Asn Thr Phe Cys Val Thr  
100 105 110

Cys Glu Asn Gln Ala Pro Val His Phe Val Gly Val Gly His Cys  
115 120 125

<210> 29

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:CAAX motif to  
target heterologous proteins to the plasma  
membrane, where A = aliphatic amino acid and  
X = Ser, Met, Cys, Ala or Gln

<400> 29

Cys Val Ile Met

1

<210> 30

<211> 27

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana pipiens  
 Onconase degenerate forward primer

<400> 30  
 agrgatgtkg attgygataa yatcatg

27

<210> 31

<211> 27

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana pipiens  
 Onconase degenerate reverse primer

<400> 31  
 aaartgmacw ggkgcctgrt tytcaca

27

<210> 32

<211> 96

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana  
 catesbeiana ribonuclease synthetic gene (RaCOR1)  
 oligonucleotide

<400> 32  
 cagaactggg ctactttcca gcagaaacat atcatcaaca ctccgatcat ctgcaacact 60  
 atcatggaca acaacatcta catcgttggt ggtcag

96

<210> 33

<211> 86

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Rana  
 catesbeiana ribonuclease synthetic gene (RaCOR1)  
 oligonucleotide

<400> 33  
 tacatcggtg gtggtcagtg caaacgtggt aacactttca tcatctctct gctactactg 60  
 ttaaacgtat ctgcactggt gttatc

86

<210> 34

<211> 96

<212> DNA

<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 34

atctgcactg gtgttactaa catgaacggt ctgtctacta ctcgtttcca gctgaacact 60

tgcaactcgtta cttctatcac tccgcgtccg tgcccg

96

&lt;210&gt; 35

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 35

gttgataaca ccagtgcaga t

21

&lt;210&gt; 36

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 36

atctgcactg gtgttatcaa c

21

&lt;210&gt; 37

&lt;211&gt; 95

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 37

actccgcgtc cgtgcccgtta ctcttctcgt actgaaacta actacatctg cgtaaagtgc 60

gaaaaccagt acccggttca tttcgctggt atcgg

95

&lt;210&gt; 38

&lt;211&gt; 71

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 38

atatatctag aaataatttt atttaacttt aagaaggaga tatacatatg cagaactggg 60

ctactttcca g

71

&lt;210&gt; 39

&lt;211&gt; 48

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 39

cgcgccggat ccctactacg ggcaacgacc gataccagcg aaatgaac

48

&lt;210&gt; 40

&lt;211&gt; 96

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 40

cagaactggg ctactttcca gcagaaacat atcatcaaca ctccgatcat ctgcaacact 60

atcctgcaga acaacatcta catcgttggt ggtcag

96

&lt;210&gt; 41

&lt;211&gt; 96

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana ribonuclease synthetic gene (RaCOR1)  
oligonucleotide

&lt;400&gt; 41

atctgcactg gtgttatcaa cctgaacgtt ctgtctacta ctcgtttcca gctgaacact 60

tgcactcgta cttctatcac tccgcgtccg tgcccg

96

&lt;210&gt; 42

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Rana  
catesbeiana insertion primer for NdeI restriction  
site

&lt;400&gt; 42

ggattccata tgcagaactg ggctatttttc cag

33

&lt;210&gt; 43

• &lt;211&gt; 6

&lt;212&gt; PRT

&lt;213&gt; Artificial-Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:six histidine  
residue tag at amino terminus

&lt;400&gt; 43

His His His His His His

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